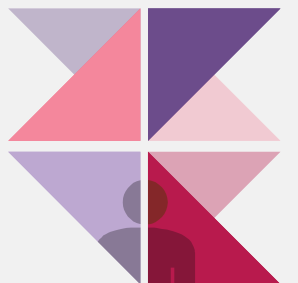




HW1

Food Multi-classification



Outline

Objection

Task Description

Data

Kaggle

Grading

Deadlines

Report

Hints

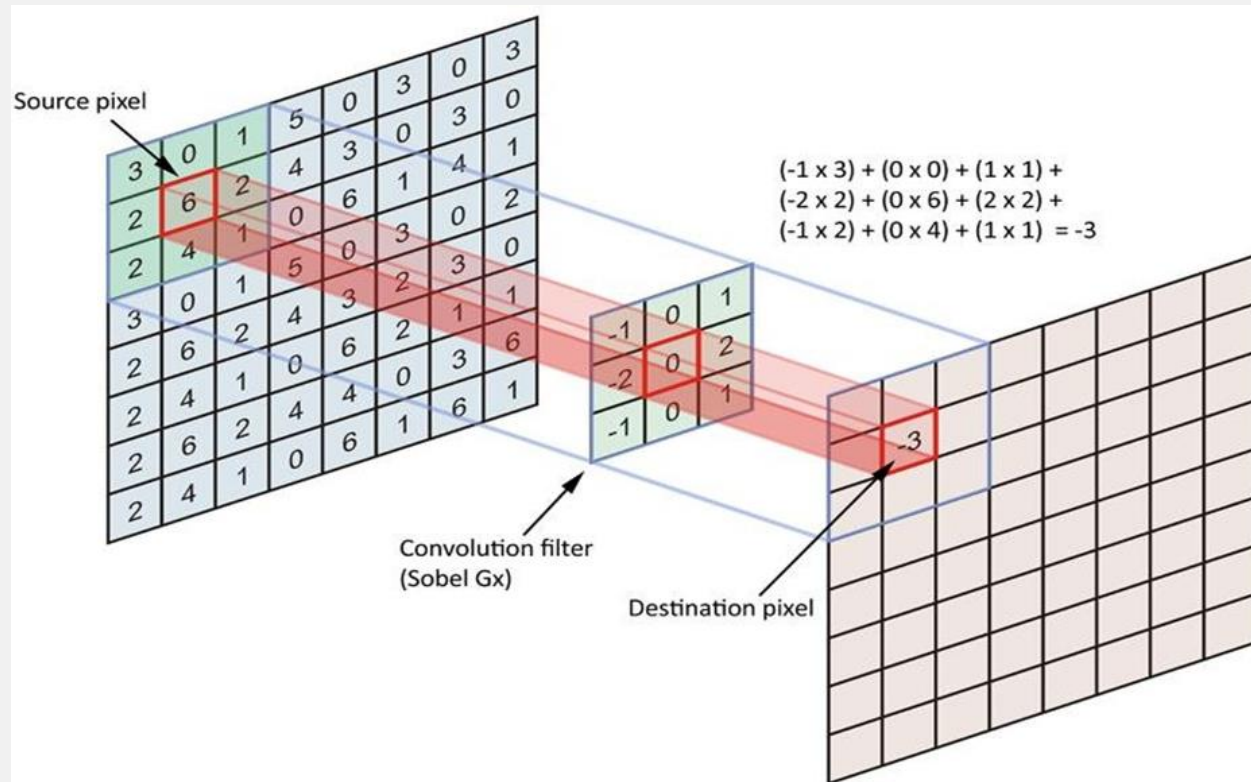
Regulations

Objection

Using CNN for multi-classification

Using data augmentation to improve CNN performance

Adjusting depth of CNN for different case difficulty



Task Description

Categorize 11 different food images



Data

Categorize 11 different food images

Training data:

- 9866 images consist of 11 categories

Test data:

- 3430 images

Data

Training directory



Test directory



Kaggle

Join Link: [Kaggle](#)

Sample Code: [Code](#)

Dataset: [Data](#)

Name setting: <student ID>_<anything>

➤ E.g. M1254xxx_恐龍抗郎抗郎抗, M1254xxx_wakuwaku

Submission format: *.csv file

Id	Category
0	5
1	1
2	9
3	9
4	8
5	1
6	6
7	0
8	6

Dataset Loader



```
class FoodDataset(Dataset):

    def __init__(self, path, tfm=test_tfm, files = None):
        super(FoodDataset).__init__()
        self.path = path
        self.files = sorted([os.path.join(path, x) for x in os.listdir(path) if x.endswith(".jpg")])
        if files != None:
            self.files = files
        print(f"One {path} sample", self.files[0])
        self.transform = tfm

    def __len__(self):
        return len(self.files)

    def __getitem__(self, idx):
        fname = self.files[idx]
        im = Image.open(fname)
        im = self.transform(im)
        #im = self.data[idx]
        try:
            label = int(fname.split("/")[-1].split("_")[0])
        except:
            label = -1 # test has no label
        return im, label
```


Model Construction

▼ Model Construction

```
▶ class Classifier(nn.Module):  
    def __init__(self):  
        super(Classifier, self).__init__()  
        pass  
  
    def forward(self, x):  
        pass
```

Test and Generate prediction CSV

▼ Testing and generate prediction CSV

```
[ ] model_best = Classifier().to(device)
    model_best.load_state_dict(torch.load(f"{_exp_name}_best.ckpt"))
    model_best.eval()
    prediction = []
    with torch.no_grad():
        for data,_ in test_loader:
            test_pred = model_best(data.to(device))
            test_label = np.argmax(test_pred.cpu().data.numpy(), axis=1)
            prediction += test_label.squeeze().tolist()
```

```
[ ] #create test csv
    def pad4(i):
        return "0"*(4-len(str(i)))+str(i)
    df = pd.DataFrame()
    df["Id"] = [pad4(i) for i in range(1,len(test_set)+1)]
    df["Category"] = prediction
    df.to_csv("submission.csv", index = False)
```

Kaggle

Community Prediction Competition

ML2022_Summer-HW1

food prediction

a month to go

Overview Data Code Discussion Leaderboard Rules

Join Competition

Overview

Description Predict food-11

Overview Data Code Discussion **Leaderboard** Rules Team Host Submissions

Submit Predictions

Raw Data Refresh

Leaderboard

Search leaderboard

Public Private

This leaderboard is calculated with approximately 50% of the test data. The final results will be based on the other 50%, so the final standings may be different.

#	Team	Members	Score	Entries	Last	Code	Join
1	====='I'm very strong'====		0.67463				
2	====='Baseline'====		0.53994				

Submit to Competition

File Upload Notebook

ML2022_Summer-HW1
You have 10 submissions remaining today. This resets in a day.

Drag and drop file to upload
(e.g., .csv, .zip, .gz, .7z)

Browse Files

0 / 500

```
t -c m12022-summer-hw1 -f submission.csv -m "Message"
```

Kaggle

Maximum Daily Submission: 10 (UTC+8)(8:00 am)

Select 2 submission for private leaderboard (在 Deadline 之前選擇，Deadline 之後公布，記得要選，沒選以 0 分計算)

prediction_large.csv 2 years ago by ntuee_jizz model_large3_684_compressed.pth, size = 201KB, params: 93139 (rabbit ensemble)	0.65059	0.66341	<input checked="" type="checkbox"/>
prediction_large.csv 2 years ago by ntuee_jizz model_large3_676_compressed.pth, size = 201KB, params: 93139 (rabbit ensemble)	0.65282	0.65422	<input type="checkbox"/>
prediction_large.csv 2 years ago by ntuee_jizz model_large2_669_compressed.pth, size = 222KB, params: 103623	0.65394	0.65254	<input checked="" type="checkbox"/>

Grading

Baseline (Public)	- 15pts
Baseline (Private)	- 15pts
Strong baseline (Public)	- 15pts
Strong baseline (Private)	- 15pts
Report (Public)	- 40pts

會根據同學繳交情況調整

Deadlines

Kaggle and Report

- 2023/11/08 23:59 (UTC+8) Upload to NCUE Cloud Server
- 遲交分數會打折

Report Format

Architecture

Method (with code highline)

Learned with course and homework

Conclusion

Hints

Using good famous CNN architecture

Pretrained model (Prohibit)

Augmentation

Regulations

請自己完成作業，勿分享code與參數

禁止手動更改預測結果

禁止使用任何方法在一天內提交超過所限制的次數